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Canadian
Seed Growers' Association

THIRTEENTH
ANNUAL REPORT

FOR THE
YEAR ENDING
MARCH 31
1917

PART ONE
Minutes of Annual Meeting.

PART TWO
Contributions.

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PRINTED BY
THE MORTIMER CO. LIMITED
OTTAWA

PREFATORY STATEMENT

REGARDING THE

CONSTITUTION, OBJECTS AND METHODS OF THE CANADIAN SEED GROWERS' ASSOCIATION

The Constitution of the Canadian Seed Growers' Association together with the By-Laws and Regulations which govern its operations are printed in a special booklet, a copy of which is sent each member and applicant. Since copies of the Annual Reports—of which this is the thirteenth—are sent to many persons who are not members and who may not know what the Association is or what it stands for, it is proposed to give here a brief description of its origin, objects and methods.

Origin of Canadian Seed Growers' Association.

The Canadian Seed Growers' Association is an outgrowth of the Macdonald Seed Grain Competition, which competition began in 1900 and continued for three years, extending over the entire Dominion and including about 1,500 competitors. The object of this Competition was to stimulate an interest in the growing of pure and productive seed throughout Canada and to demonstrate to the farmer the great practical advantages which may accrue from the use of such seed. At the close of the competition the Canadian Seed Growers' Association was organized, with a view to promoting, through organized effort, a continued interest in this question.

Organization.

The officers of the Association consist of a President, three Vice-Presidents, a Secretary and Treasurer, an Executive Council and a Board of Directors consisting of twenty members. Each province in Canada nominates a Director so that the work is entirely national in character and far reaching in influence.

Membership.

The membership is composed of farmers who make the growing of seed a special branch of their farming operations, and who wish to have their seed registered in the Records of the Association at Ottawa in order that they may reap a fuller reward for their labors should they have a quantity of such seed to sell.

Aims.

The aim of the Association is to systematize the work of seed growing so that it may be made so simple and practical that a large number of farmers may become members and producers of high-class seed of known origin, quality and purity on

CANADIAN SEED GROWERS' ASSOCIATION

Head Office—Canadian Building, Ottawa, Ontario.

Officers, 1917-18

President.—Dr. James W. Robertson, C.M.G., LL.D., Ottawa, Ont.

Vice-Presidents.—Dr. C. A. Zavitz, Guelph, Ont.; Prof. M. Cumming, Truro, N.S.; Prof. James Murray, Macdonald College, P.Q.

Secretary and Treasurer.—L. H. Newman, B.S.A., Canadian Building, Ottawa, Ont.

Executive Council.—Dr. James W. Robertson, L. H. Newman, Dr. C. A. Zavitz, Prof. T. J. Harrison, Agricultural College, Winnipeg, Man.; Prof. James Murray; C. F. Bailey, Department of Agriculture, Toronto, Ont.; F. N. Savoie, Department of Agriculture, Quebec, P.Q.

Directors.—Dr. C. A. Zavitz, Guelph, Ont.; Prof. James Murray, Macdonald College, Que.; Prof. John Bracken, Agricultural College, Saskatoon, Sask.; Prof. T. J. Harrison, Winnipeg, Man.; Prof. M. Cumming, Truro, N.S.; Dr. R. B. Hagerman, East Florenceville, N.B.; H. A. Craig, Deputy Minister of Agriculture, Edmonton, Alta.; E. A. Howes, University of Alberta, Edmonton, Alta.; M. P. Tullis, Regina, Sask.; R. S. Duncan, Department of Agriculture, Toronto, Ont.; F. N. Savoie, Department of Agriculture, Quebec, Que.; Wm. Palmer, Scotch Lake, N.B.; W. L. MacFarlane, Fox Harbour, N.S.; G. H. Hadwin, Duncan, B.C.; W. H. McGregor, Miscouche, P.E.I.; W. W. Thomson, Department of Agriculture, Regina, Sask.; Prof. L. S. Klinck, University of British Columbia, Vancouver, B.C.; and Geo. Dow, Gilbert Plains, Man.

CANADIAN SEED GROWERS' ASSOCIATION

List of Operating Members, 1916-1917

The following list gives the names and addresses of those from whom reports were received for 1916 together with the kind and varieties of crops with which they are operating, and the number of years the seed is known to have been selected:

WHEAT

Alberta

Anderson, Anton, Lawsonburg, Sec. 19, Tp. 29, R. 16, W. 4th Mer.; Marquis, 2 years.
Arland, Geo. H., Lougheed, Sec. 22, Tp. 44, R. 10, W. 4th; Marquis, 4 years.
Blackwood, Alexander S., De Winton, Sec. 24, Tp. 21, R. 29, W. 4th; Marquis, 4 years.
Gould, Wm. H., Islay, Sec. 20, Tp. 51, R. 40, W. 4th Mer.; Marquis, 2 years.
Hess, W. H. Oyen, Sec. 6, Tp. 22, R. 4, W. 4thMer.; Marquis, 4 years.
Lees, Bernard C., Edgerton, Sec. 14, Tp. 42, R. 4, W. 4th Mer.; Marquis, 3 years.
Lougheed, A., Bowden, Sec. 23, T. 34, R.I., West 5th Mer.; Marquis, 3 years.
MacArthur, Max., New Brigden, Sec. 34, Tp. 31, R. 4, West 4th; Marquis, 3 years.
Perry, A. D., Talbot, Sec. 6, Tp. 38, R. 9, West 4th; Marquis, 5 years.
Snowden, T. W., Oueletteville, Sec. 18, Tp. 23, R. 20, West 4th; Marquis, 3 years.
Stewart, Dan., Cairns, Sec. 9, Tp. 39, R. 4, West 4th; Marquis, 5 years.
Stewart, Dan., Cairns, Sec. 9, Tp. 39, R. 4, West 4th; Kitchener, 1 year.

Saskatchewan

Angus MacKay Farm Seed Co., Indian Head, Sec. 24, T. 18, R. 13, West 2nd; Marquis, 4 years.
Barr, David C., Cut Knife, Sec. 9, Tp. 44, R. 21, West 3rd; Marquis, 5 years.
Butler, Lyall W., Kelfield, Sec. 27, T. 34, R. 19, West 3rd; Marquis, 2 years.
Borts, Israel, Eyre, Sec. 28, Tp. 26, R. 28, West 3rd; Marquis, 2 years.
Bryan, A. H., Bridgeford, Sec. 7, Tp. 23, R. 3, West 3rd; Marquis, 4 years.
Campbell, Alex. N., Avonlea, Sec. 10, Tp. 12, Range 22, W. 2nd; Marquis, 6 years.
Carter, R. H., Fort Qu'Appelle, Sec. 17, Tp. 21, R. 14, W. 2nd; Marquis, 4 years.
Carter, R. H., Fort Qu'Appelle, Sec. 17, Tp. 21, R. 14, West 2nd; Red Fife, 8 years.
Coupland, John W., Palmer, Sec. 15, Tp. 12, R. 3, West 3rd; Marquis, 3 years.
Currie, Donald, Vanguard, Sec. 29, Tp. 17, R. 24, West 3rd; Red Fife, 5 years.
Currie, Donald, Vanguard, Sec. 29, Tp. 17, R. 24, West 3rd; Marquis, 3 years.
Clarke, Robert, Speers, Sec. 32, Tp. 40, R. 11, West 3rd; Prelude, 5 years.
Cummings, W. J., St. Boswells, Sec. 16, Tp. 12, R. 7, West 3rd; Marquis, 2 years.
Dash, F. J., Hillesden, Sec. 22, Tp. 15, R. 6, West 2nd; Marquis, 6 years.
Dunstan, Thos., Assiniboia, Sec. 33, Tp. 7, R. 30, West 2nd; Marquis, 6 years.
Ellett, Jesse R., Lanigan, Sec. 21, Tp. 35, R. 22, West 2nd; Marquis, 2 years.
Fields, J. S., Regina, Sec. 14, Tp. 18, R. 20, West 2nd; Marquis, 3 years.
Fitzgerald, G. D., Grenfell, Sec. 8, Tp. 17, R. 7, West 2nd; Prelude, 1 year.
Fitzgerald, G. D., Grenfell, Sec. 8, Tp. 17, R. 7, West 2nd; Marquis, 3 years.

Genge, C., Kindersley, Sec. 27, Tp. 9, R. 27, West 2nd; Marquis, 6 years.
Gerlach, Paul, Allan, Sec. 28, Tp. 32, R.I., W. 3rd Mer.; Marquis, 5 years.
Goldney-Cary, F. C., Dysart, Sec. 9, Tp. 23, R. 15, West 2nd; Marquis, 2 years.
Harband, W. J., Reklaw, Sec. 36, Tp. 4, R. 4, West 3rd; Marquis, 4 years
Howard Bros., Forest Farm, Sec. 27, Tp. 17, R. 2, West 2nd; Prelude, 1 year.
Hart, Stanley, Parkbeg, Sec. S.W. ¼9, Tp. 17, R. 2, West 3rd; Marquis, 4 years.
Hinkley, Earl, Wilkie, Sec. 27, Tp. 38, R. 20, West 3rd; Marquis, 4 years.
Hancox, Avery, Kindersley, Sec. 36, Tp. 25, R. 24, West 3rd; Marquis, 3 years.
Hardy, Lewis, Vidora, Sec. 10, Tp. 4, R. 26, West 3rd; Marquis, 10 years.
Isaac, A. L.,Aberdeen, Sec. 14, Tp. 39, R. 3, West 3rd; Red Fife, 8 years.
Kirkpatrick, W. A., Saskatoon, Sec. 16, T. 36, R. 6, West 3rd; Marquis, 4 years.
Kirkham R. D., Saltcoats, Sec. 1, T. 24, R. 2, West 2nd; White Fife, 1 year.
Lintott, Chas., Raymore, Sec. 18, Tp. 28, R. 18, West 2nd; Marquis, 7 years.
McWhirter, D. C., Rockhaven, Sec. S. W. ¼12, T. 2, R. 21, West 3rd; Marquis, 2 years.
Myres, E. W. Truax, Sec. 16, T. 11, R. 22, West 2nd; Marquis, 5 years.
Orchard, Geo., Halcyonia, Sec. 22, Tp. 40, R. 8, West 3rd; Marquis, 1 year.
Potts, Peter, Raymore, Sec. 2, Tp. 30, R. 19, West 2nd; Marquis, 7 years.
Powell, R. E., Wisetown, Sec. 28, Tp. 25, R. 12, West 3rd; Marquis, 1 year.
Penny, Clarence, Tilney, Sec. 26, T. 14, R. 26, West 2nd; Marquis.
Richter, Armin, Alford, Sec. 20, Tp. 25, R. 12, West 3rd; Marquis, 4 years.
Rathwell, Geo., Redpath, Sec. 13, T. 28, R. 16, West 2nd; Marquis, 4 years.
Seagrave, R. W., Rosetown, Sec. 16, T. 30, R. 15, West 3rd; Marquis, 5 years.
Simpson, Wm. S., Glenbryan, Sec. 9, T. 11, R. 11, West 3rd; Marquis, 4 years.
Sorby, Harold, Keddleston, S.E. ¼ & N.E.¼ 34, T. 4, R. 23, West 2nd; Kitchener, 1 year.
Talbot, Martin R. & Son, Oban, Sec. 30, T. 36, R. 15, West 3rd,; Red Fife, 10 years.
Tate, Andrew, Seemans, Sec. 6, Tp. 27, R. 19, West 2nd; Marquis, 3 years.
Waddington, Ed., Alameda, Sec. 18, Tp. 25, R. 2, West 2nd; Marquis, 3 years.
Wake, Joshua K., Halcyonia, Sec. 2, Tp. 40, R. 8, West 3rd; Red Fife, 4 years.
Wheeler, Seager, Rosthern, Sec. 3, Tp. 43, R. 3, West 3rd; Marquis, 5 years.
Wright, Norman, Fairmount, Sec. 22, T. 28, R. 24, West 3rd; Marquis, 4 years.

Manitoba

Aitken, Albert, Melita, Sec. 20, T. 2, R. 26, West 1st; Marquis, 4 years.
Bedford, Mrs. N. Morden, Sec. 6, Tp. 2, R. 5, West P. Mer; Red Fife, 7 years.
Bell, Donald, A. S., Rathwell, Sec. N. ½ N.W.¼ I, Tp. 10, R. 8, W. I.; Marquis, 2 years.
Brockington, W. R., Elva, Sec. 22, Tp. 2, R. 27, W. P. Mer.; Marquis, 1 year.
Dow Brothers, Gilbert Plains, Sec. 9, T. 25, R. 22, W. P. Mer.; Red Fife, 14 years.
Dow Bros., Gilbert Plains, Sec. 9, T. 25, R. 22, W. P. Mer.; Marquis, 2 years.
Hunt, Harold, J., Poplar Point, Sec. Riv. Lots 4 & 5, Tp. 12, R. 14; Marquis, 1 year.
MacVicar, Portage la Prairie, Sec. 10, Tp. 12, R. 7, West 2nd; Marquis, 4 years.
Rowe, W. A. A., Neepawa, Sec. 25, Tp. 15, R. 16, West 1st; Red Fife, 9 years.
Schroeder, G. P., Chortitz, Sec. 2, Tp. 7, R. 5, West 2nd; Red Fife, 2 years.
Schroeder, G. P., Chortitz, Sec. 2, T. 7, R. 5, West 2nd; Marquis, 1 year.

Ontario

Carr, Samuel, Paris, Brant Co., Dawson's Golden Chaff, 2 years.
Coats, Harold, Dryden, Kenora District; Marquis, 2 years.

Dumfries & Wilmott, Golden Chaff Wheat Centre, Galt, Waterloo Co.; Dawsons Golden Chaff, 13 years.
Goltz, Herman, Bardsville, Muskoka District ; Marquis, 1 year.
Wilson, Peter, Cobden, Renfrew Co.; Marquis, 1 year.

Quebec

Morin, Horace, St Hyacinthe, St Hyacinthe Co.; Red Fife, 6 years
Phaneuf, Antoine; St. Antoine, Vercheres Co., ; Marquis, 3 years.
Phaneuf, Antoine; St. Antoine, Vercheres Co.; Red Fife, 2 years.
Tardiff, Laurent, St. Germain, Kamouraska Co.; Preston, 7 years.

New Brunswick

Hume, E. Lorne, Florenceville, Carleton Co.; White Fife, 1 year.
Innes, Donald, Tobique River, Victoria Co.; Red Fife, 17 years.

Nova Scotia

Chisholm, Ronald, Glen Road, Antigonish Co.; White Russian, 3 years.
Cunningham, J. L., Bayhead, Colchester Co.; White Russian, 4 years.
Dunn, James H., Lower South River, Antigonish Co.; White Russian, 12 years
Hogan, Thomas, Harbour Road, Antigonish Co.; White Russian, 4 years.
Kaulbeck, Robert, Middle Musquodoboit, Halifax Co.; Red Fife, 2 years.
MacFarlane, W. L., Fox Harbour Pt., Cumberland Co.; Red Fife, 6 years.
MacKay, R. D., Balmoral Mills, Colchester Co.; Red Fife, 10 years.

Prince Edward Island

Kelly, M. J., Eliott Vale, Kings County; White Fife, 2 years.
Murphy, James E., Cape Traverse, Prince Co.; White Russian, 14 years.
McGregor, W. H., Miscouche, Prince Co.; White Fife, 1 year.
Waugh, Thomas S., Wilmott Valley, Prince Co.; White Russian, 17 years.
Wiggington, T. J., Bridgetown, Annapolis Co.; White Russian, 16 years.

OATS

Alberta and British Columbia

Acorn, Elmer, McLeod Valley, S. W. I, Tp. 55, R. 14, West 5th; Banner, 13 years.
Anderson, Anton, Lawsonburg, Sec. 19, Tp. 29, R. 16, West 4th; Victory, 2 years.
Arland, Geo. H., Lougheed, Sec. 22, Tp. 44, R. 10, West 4th; Swedish Select, 1 year.
Blackwood, Alex. S., De Winton, Sec. 36, Tp. 21, R. I. West 4th; Banner, 10 years.
Gould, W. H., Islay, Sec. 20, Tp. 51, R. 40, West 4th Mer.; Victory, 1 year.
Hess, W. H., Oyen, Sec. 6, Tp. 23, R. 4, West 4th; Banner, 13 years.
Lougheed, Albert, Bowden, Sec. 23, Tp. 34, R. I., West 5th Mer.; Banner, 9 years.
Lougheed, Albert, Bowden, Sec. 23, Tp. 34, R. I., West 5th Mer.; Abundance, 1 year.
Lucas, J. W., Cayley, Sec. 19, Tp. 17, R. 28, West 4th; Abundance, 6 years.
Lees, Bernard C., Edgerton, Sec. 14, Tp. 42, R. 4, West 4th; Banner, 1 year.
MacArthur, Max., New Brigden, Sec. 33, Tp. 31, R. 4, West 4th; O.A.C. No. 72, 3 years.
McLennan, A. D., Rock Creek, B.C.; Banner, 12 years.
Vermilion Banner Oat Centre, Vermilion, Sec. 30, Tp. 50, R. 6, West 4th; Banner, 9 years.

Saskatchewan

Carter, R. H., Fort Qu'Appelle, Sec. 17, Tp. 21, R. 14, West 2nd; Abundance, 9 years.
Cheriton, Oliver, Assiniboia, Sec. 34, Tp. 7, R. 30; West 2nd; Victory, 4 years.
Clark, Robert W., Speers, Sec. 32, Tp. 43, R. 11, West 3rd; Victory, 3 years.
Currie, Donald, Vanguard, Sec. 30, Tp. 10, Rp, 9; West 3rd, Victory, 1 year.
Ellett, Jesse R., Lanigan, Sec. 21, Tp. 35, R. 22, West 2nd; Banner, 1 year.
Fields, J. S., Regina, Sec. 14, Tp. 18, R. 20, West 2nd; Victory, 2 years.
Fields, J. S., Regina, Sec. 14, Tp. 18, R. 20, West 2nd; Banner, 3 years.
Fitzgerald, G. D., Grenfell, Sec. 8, Tp. 17, R. 7, West 2nd; Ligowo, 4 years.
Hinkley, Earl, Wilkie, Sec. 27, Tp. 38, Rp. 20, West 3rd; Victory, 3 years.
Kirkham, R. D., Saltcoats, Sec. I, Tp: 24, R. 2, West 2nd; Gold Rain, 2 years.
Richter, A., Alford, Sec. 24, Tp. 25, R. 13, West 3rd; Abundance, 6 years.
Simpson, W. S., Glenbryan, Sec. 9, Tp. 11, West 3rd; Banner, 12 years.
Stansfield, E. J., Atwater, Sec. 4, Tp. 21, R. 2; West 2nd, Banner.
Sorby, Harold, Keddleston, S. E. ¼ & N.E. ¼34, Tp. 4, R. 23; West 2nd, Victory, 2 years.
Wake, Joshua K., Halcyonia, Sec. 33, Tp. 39, R. 9, West 3rd; Victory, 2 years.
Wheeler, Seager, Rosthern, Sec. 3, Tp. 43, R. 3, West 3rd; Victory, 4 years.

Manitoba

Dow Bros., Gilbert Plains, Sec. 9, Tp. 25, R. 22, West P. Mer.; Banner, 16 years.
Langrell Bros., Woodlands, Sec. 14, Tp. 14, R. 2, West 1st Mer.; Victory, 17 years.

Ontario

Carr, Samuel, Paris, Brant Co., O.A.C. No. 72, 2 years.
Crosby, R. H., Markham, York Co.; O. A. C. No. 72, 4 years.
Coughlin, Frank, Crediton, Huron Co.; O. A. C. No., 72, 2 years.
Clement, Austin, Paris, Brant Co.; Banner, 14 years.
Cohoe, R. B., South Woodslee, Essex Co.; O. A. C. No. 72, 2 years.
Dixon, W. L., Varney, Grey Co.; Banner, 16 years.
Dumfries & Wilmott, O. A. C. No. 72, Oat Centre, Sec., Stanley Hillborn, Galt, Waterloo Co.; 4 years.
Dymond, Wm. , Kerwood, Middlesex Co.; O. A. C.No. 72, 2 years.
Ferguson, W. B., Strathroy, Middlesex Co.; O. A. C. No. 72, 3 years.
Fleming, Albert, Tara, Grey Co.; Banner, 10 years.
Goltz, Herman L., Bardsville, Muskoka District, Imported Scotch, 8 years.
Gallagher, Wm., Strathroy, Middlesex Co.; O. A. C. No. 72, 2 years.
Graham, Wash., Carp., Carleton Co.; O. A. C. No. 72, 2 years.
Hodson, F. W., Brooklin, Ontario Co.; O. A. C. No. 72, 3 years.
Hamilton, Garnet E., Navan, Russell Co.; Banner, 12 years.
Klinck, R. F., Gormully, York Co.; O. A. C. No. 72, 4 years.
Livingstone, Lloyd, Minesing, Simcoe Co.; O. A. C. No. 72, 4 years.
Maccoll, Arch., Aldboro, Elgin Co.; Ligowo, 7 years.
MacFarlane, Mack A. P., Camlachie, Lambton Co.; O. A. C. No. 72, 3 years.
McCormick, R. J., Paris, Brant Co.; O. A. C. No. 72, 2 years.
McCormick, R. J., Paris, Brant Co.; O. A. C. No. 3, 1 year.
North Gower Banner Oat Centre, North Gower, Carleton Co.; Banner, 15 years.
Poole, Norman, Perth, Lanark Co.; Banner, 4 years.
Riley, R. D., Milford Bay, Muskoka District; O. A. C. No. 72, 2 years.
Schmidt, Andrew, Mildmay, Bruce Co.; Sensation, 7 years.
Sorley, Neil J., R.R. I, Ottawa, Carleton Co.; Banner, 11 years.
Stark, J., H., Peterboro, Peterboro Co.; Banner, 12 years.
Walker, Fletcher, Royston, Parry Sound District, Banner, 9 years.

Webster, H. B., St. Marys, Perth Co.; O. A. C. No. 72, 4 years.
Webster, H. B., St. Marys, Perth Co.; O. A. C. No. 3, 1 year.
Wilson, Peter, Cobden, Renfrew Co.; Banner, 12 years.
Wilmott, Alex. S., Milton, Halton Co.; O. A. C. No. 72, 2 years.
Wilson, Isaac L., Perth, Lanark Co.; Banner, 13 years.

Quebec

Brown, Byron W., Smiths Mills, Stanstead Co.; Banner, 7 years.
Couture, Jos., Lorette, Quebec Co.; Banner, 9 years.
Duval, Telesphore, Champlain, Champlain Co.; Banner, 13 years
Dubé, Alfred, Beausejour, Rimouski Co.; Banner, 13 years.
England, G. P., Dunham, Missisquoi Co.; Banner, 7 years.
Green, Henry C., Coaticook, Stanstead Co.; Banner, 7 years.
Grandmont, Elzear, Champlain, Champlain Co.; Banner, 11 years.
Hodge, Geo., Cookshire, Compton Co.; Banner, 6 years.
Hodge, Reggie, Cookshire, Compton Co.; Banner, 8 years.
Levasseur, Jeremie, St. Ulric, Matane Co.; Gold Rain, 6 years.
Lussier, Clement, Ste. Rosalie, Bagot Co.; Banner, 7 years.
Lirette, Odilon, Lorette, Quebec Co.; Banner, 12 years.
Morin, Geo. E., Ste. Hyacinthe, St. Hyacinthe Co.; Banner, 3 years.
Morin, Horace, Ste. Hyacinthe, Ste. Hyacinthe Co.; Banner, 7 years.
Morin, Adelard, Ste. Haycinthe, Ste. Hyacinthe Co.; Banner, 4 years.
Paquet, O., Lorette, Montmorency Co.; Banner, 6 years.
Pintal, Gus., Champlain, Champlain Co.; Banner, 10 years.
Rivard, Donat, Clairvaux, Bagot Co.; Banner, 6 years.
Tardiff, Laurent, St. Germain, Kamouraska Co.; Banner, 7 years.
Turcotte, Aimé, Champlain, Champlain Co.; Banner, 13 years.

New Brunswick

Hastings, Charles, Murray Road, Westmoreland Co.; Old Island Black, 9 years.
Hume, E. Lorne, Florenceville, Carleton Co.; Ligowo, 3 years.
Innes, Donald, Tobique River, Victoria Co.; Early Blossom, 17 years.
Palmer, Wm. E., Scotch Lake, York Co.; Banner, 16 years.
Secord, Messrs. H. S. & Son, Penobsquis, King's Co.; O. A. C. No. 72, 1 year.

Nova Scotia

Chisholm, Ronald, Antigonish, Antigonish Co.; Banner, 10 years.
Cunningham, J. L., Bayhead, Colchester Co.; Banner, 10 years.
Chisholm, Ronald, Glen Road, Antigonish Co.; Banner, 9 years.
Gillis, Francis, Georgeville, Antigonish Co.; Banner, 7 years.
Kaulbeck, Robert, Middle Musquodoboit, Halifax Co.; Banner, 8 years.
MacFarlane, W. L., Fox Harbour, Cumberland Co.; Banner, 11 years.
MacFarlane, J. A., Fox Harbour, Cumberland Co.; Ligowo, 4 years.
MacDonald, J. A., Maryvale, Antigonish Co.; Banner, 10 years.
MacKay, R. D., Balmoral Mills, Colchester Co.; Banner, 10 years.
MacLeod, Jno., Harbour Centre, Antigonish Co.; Banner, 1 year.

Prince Edward Island

Kelly, M. J., Elliott Vale, King's Co.; Banner, 2 years.
Marchbank, Percy, New Annan, Prince Co.; Banner, 2 years.
Marchbank, James, New Annan, Prince Co.; Banner, 17 years.
Murphy, James E., Cape Traverse, Prince Co.; Banner, 7 years.
Millman, J. Brad., Long River, Queens Co.; Banner, 10 years.
McGregor, W. H. , Miscouche, Prince Co.; Banner, 15 years.

MacFarlane, Alex. B., Bedeque, Prince Co.; Banner, 12 years.
McKenna, Michael, Newton, Prince Co.; Banner, 17 years.
Riverside Farm, Bedeque, Prince Co.; Banner, 14 years.
Sinclair, Jno. E., Emerald, Queens Co.; Banner, 11 years.
Simpson, J. J., Belmont, Prince Co.; Banner, 11 years.
Waugh, Thomas, Wilmott Valley, Prince Co.; Banner, 14 years.
Wiggington, T. J., Bridgetown, Kings Co.; Ligowo, 15 years.

BARLEY

Alberta

Lucas, J. W., Cayley, Sec. 19, Tp. 17, R. 28, West 4th; Manchurian, 3 years.
Lougheed, Albert, Bowden, Sec. 12, Tp. 34, R. 21, West 4th; O. A. C. No. 21, 1 year.
Perry, A. D., Talbot, Sec. 6, Tp. 38, R. 9, West 4th; O. A. C. No. 21, 5 years.

Saskatchewan

Ellett, James R. Lanigan, Sec. 21, Tp. 48, R. 22, West 2nd, O. A.C. No. 21, 2 years.
Hawkins, Robert, Windthorst, Sec. 24, Tp. 13, R. 7, West 2nd; O. A. C. No. 21, 4 years.
Hinkley, Earl, Wilkie, Sec. 27, Tp. 38, R. 20, West 3rd; Canadian Thorpe, 4 years.
Richter, A., Alford, Sec. 20, Tp. 25, R. 17, West 3rd; Manchurian, 2 years.
Sim, R. A., Noremac, Sec. 18, Tp. 24, R. 22, West 3rd; Manchurian, 1 year.
Sorby, Harold, Keddleston, Sec. 34, Tp. 4, R. 23, West 2nd; Canadian Thorpe, 3 years.
Wheeler, Seager, Rosthern, Sec. 3, Tp. 43, R. 3, West 3rd; Canadian Thorpe, 4 years.
Wheeler, Seager, Rosthern, Sec. 3, Tp. 43, R. 3, West 3rd; O.A.C. No. 21, 4 years.

Ontario

Barrie, Geo. R., Galt, Waterloo Co.; O. A. C. No. 21, 3 years.
Goltz, Herman, Bardsville, Muskoka District; O. A. C. No. 21, 2 years.
Howell, Harold, Onondago, Brant Co.; O. A. C. No. 21, 3 years.
Livingstone, Lloyd, Minesing, Simcoe Co.; O. A. C. No. 21, 8 years.
Maccoll, Archibald, Rodney, Elgin Co.; O. A. C. No. 21, 5 years.
Schmidt, Andrew, Mildmay, Bruce Co.; O. A. C. No. 21, 7 years.
Stark, J. H., Peterboro, Peterboro Co.; O. A. C. No. 21, 7 years.
Vansickle, A. W., Cainsville, Brant Co.; O. A. C. No. 21, 3 years.
Webster, H. B., Rannoch, Perth Co.; O. A. C. No. 21, 6 years.

Quebec

Phaneuf, Antoine, Ste. Antoine, Vercheres Co.

Prince Edward Island

MacFayden, Edward, Cape Traverse, Prince Co.; C.E.S. No. 80, 1 year.

CORN

Manitoba

MacLaren, Gordon, Pipestone, Sec. E½6, Tp. 6, R. 6, West 1st, Quebec No. 28, 4 years.

Ontario

Cohoe, B. R., South Woodslee, Essex Co.; Wisconsin No. 7, 5 years.
Hedrick, J. H. South Woodslee, Essex Co.; Wisconsin No. 7, 2 years.
Maynard, A. S., Chatham, Kent Co.; N. Dak.; White Flint, 6 years.
Maccoll, Arch., Rodney, Elgin Co.; Wisconsin, No. 7, 1 year.
Macfarlane, Mack A. P., Camlachie, Lambton Co.; White Cap Yellow Dent, 3 years.
McKee, Jno. W., Norwich, Oxford, Co.; Stowell's Evergreen, 9 years.

Quebec

Reid, B. E.; Ulverton, Drummond Co.; P.Q.; Yellow, 7 years.

PEAS.

Alberta

Lucas, J. W. Cayley, Sec. 19, Tp. 17, R. 28, West 4th Mer.; Arthur, 3 years.

Saskatchewan

Simpson, W. S., Glenbryan, Sec. 9, Tp. 11, R. 11, West 3rd Mer.; Arthur, 1 year.
Sim, R. A., Noremac, Sec. 18, Tp. 24, R. 22, West 3rd; Arthur, 1 year.

Ontario

Walker, Fletcher, Royston, Parry Sound District; Arthur, 1 year.

POTATOES

Alberta

Lougheed, Albert, Bowden, Sec. 12, Tp. 34, R. 29, West 4th; Rural New Yorker, 3 years.

Saskatchewan

Budd, Arch., Rush Lake, Sec. 23, Tp. 15, R. 11, West 3rd; Irish Cobbler, 5 years.
Clark, R. W., Speers, Sec. 32, Tp. 43, R. 11, West 3rd; Wee MacGregor, 2 years.
Fields, Mrs. J. R., Regina, Sec. 14, Tp. 18, R. 20, West 2nd; Irish Cobbler, 4 years.
Genge, C., Kindersley, Sec. 27, Tp. 19, R. 27, West 3rd; Wee Macgregor, 4 years.
Genge, C., Kindersley, Sec. 27, Tp. 19, R. 27, West 3rd; Early Ohio, 3 years.
Simpson, Wm., Glenbryan, Sec. 9, Tp. 11, R. 11, West 3rd Mer.; Gold Coin, 1 year.
Turner, W. E., Duval, Sec. 27, Tp. 25, R. 22, West 2nd; Ash Leaf Kidney, 4 years.
Turner, W. E., Duval, Sec. 27, Tp. 25, R. 22, West 2nd; Rochester Rose, 4 years.
Turner, W. E., Duval, Sec. 27, Tp. 25, R. 22, West 2nd; Irish Cobbler, 7 years.
Van Sen, T. C., Lewiswyn, Sec. S. E. 16, Tp. 29, R. 19, West 2nd, Dreer's Standard, 1 year.
Watters, Wm., Nutana, Sec. 36, Tp. 34, R. 5, West 3rd; Vermont Gold Coin 5 years.
Watters, Wm. Nutana, Sec. 36, Tp. 34, R. 5, West 3rd; Rochester Rose, 5 years.
Wheeler, Seager, Rosthern, Sec. 3, Tp. 43, R. 3, West 3rd; Beauty of Hebron, 6 years.
Whiting, J. J. Wolfe, Sec. 36, Tp. 38, R. 18 West 3rd; Duke of York, 1 year.

Ontario

Galbraith, W. J., Phelpston, Simcoe Co.; Davies Warrior, 1 year.
Goltz, Herman, L., Bardsville, Muskoka District; Empire State, 7 years.
Goltz, Herman L., Bardsville, Muskoka District; Early Rose, 7 years.
Goltz, Herman L., Bardsville, Muskoka District; Davies Warrior, 2 years.
Hamilton, Walter, Navan, Russell Co.; Green Mountain, 8 years.
Hutchinson, Alfred, Mount Forest, Wellington Co.; Empire State, 9 years.
Hutchinson, Alfred, Mount Forest, Wellington Co.; Rural New Yorker, 4 years.
Johnston, J. Alex., Port Arthur, Thunder Bay District; Irish Cobbler, 5 years.
Livingstone, Lloyd, Minesing, Simcoe Co.; Davies Warrior, 4 years.
Manvers Potato Centre, Pontypool, Durham Co.; Green Mountain, 6 years.
Naismith, Wm., Falkenburg, Muskoka District; Empire State, 6 years.
Naismith, Wm., Falkenburg, Muskoka District; Rochester Rose, 6 years.
Naismith, Wm., Falkenburg, Muskoka District; Canadian Standard, 7 years.
Roberts, J. H., Earlton, Nipissing District; Irish Cobbler, 3 years.
Sharp, John, Haileybury, Nipissing District; Green Mountain, 1 year.
Walker, Fletcher, Royston, Parry Sound District; Rochester Rose, 4 years.
Walker, Fletcher, Royston, Parry Sound District; Empire State, 4 years.

Quebec

England, G.P., Dunham, Missisquoi Co.; Green Mountain, 5 years.
Tardiff, Laurent, St. Germain, Kamouraska Co.; Gold Coin, 1 year.

New Brunswick

Fawcett, C. Fred, Sackville, Westmoreland Co.; Green Mountain, 8 years.
Fawcett, C. Fred., Sackville, Westmoreland Co.; Irish Cobbler, 7 years.
Hume, E. Lorne, Florenceville, Carleton Co.; Green Mountain, 3 years.
Napier, N. L., Lower Woodstock, Carleton Co.; Green Mountain, 5 years.
Palmer, Wm. E., Scotch Lake, York Co.; Green Mountain, 6 years.
Palmer, Wm. E., Scotch Lake, York Co.; Irish Cobbler, 6 years.

Nova Scotia

Gillis, Francis, Georgeville, Antigonish Co.; Green Mountain, 1 year.

BEANS

Ontario

Coughlin, Frank, Crediton, Huron Co.; Boston Pea Beans, 1 year.

Applicants, 1916-17

Those who have applied for membership, including those in seed centres, but who are not yet entitled to such recognition, are indicated in the following table:

	Mar. Dist.	P.Q.	Ont.	Man.	Sask.	Alta. & B.C.	Total
Seed Wheat growers..........	37	16	38	37	139	55	322
Seed Barley growers..........	17	14	49	10	21	14	125
Seed Oat growers.............	77	218	238	17	76	69	695
Growers of Seed Corn.........	7	6	39	9	1	10	72
Growers of Seed Potatoes....	25	8	46	3	18	28	128
Growers of Seeds of miscellaneous crops, such as Beans, Peas, etc.................	3	12	45	2	21	7	90
	166	274	455	78	276	183	1432

Since some of the growers indicated in the above table operate with more than one class of crop, a further analysis is necessary in order to show the exact number of persons actually engaged in the work. The following statement indicates the standing of the Association in this respect:—

SUMMARY

Total number on application list before revision	1290		
Total number of applicants removed from list of active members	109		
Number of applicants removed to membership list	51		
Number of applicants remaining on list			1130
Number of old members reporting satisfactorily		140	
Number of members failing to make satisfactory selections	204		
Number of old members dropping the work	21		
		183	
Number of new members reporting satisfactorily		51	
Total number of individual members in full standing			374
Total number affiliated with the Association			1504

Minutes of the Thirteenth Annual Meeting of the Canadian Seed Growers' Association

The Thirteenth Annual Meeting of the Canadian Seed Growers' Association was held in the office of the Seed Commissioner, Canadian Building, Ottawa, on July 31st, 1917.

The President, Dr. James W. Robertson occupied the chair and in opening the meeting explained that the Convention this year would deal exclusively with the business of the Association as it was not thought practicable under present conditions to bring delegates long distances to attend a large popular gathering.

The minutes of the last meeting were taken as read. The Report of the Board of Direotors was then submitted by the Secretary as was also the Secretary's Report.

Directors' Report

(*Presented by the Secretary*)

We beg to submit herewith a very brief report of the operations and general progress of the Association for the past year. Certain details including the numerical standing of the Association will be submitted later in the Report of the Secretary.

The unusual conditions which have prevailed throughout Canada during the past year and which prevail to-day, have brought to the Association added opportunities and increased responsibilities. Never in the history of the Association has the value of our work been more apparent or the number of appeals for assistance more numerous and urgent. The unfavourable season of 1916, in many parts of the Dominion, resulting as it did in a shortage of good seed, together with the great national importance of producing as many bushels as possible in 1917, brought with it a widespread and urgent demand for the best seed available. Naturally many looked to the Association for their supply, and it is gratifying to be able to report that we were able to supply a considerable quantity. Unfortunately the war has taken from us many of our best growers, some of whom we regret to report will never return. On the other hand, it is bringing into our ranks a large number of recruits who realize the part they can play in the great struggle, as producers of more vital and productive seed.

Urgent as are the demands for the greatest possible effort to insure an adequate supply of the best seed for our farmers in war time, we recognize an almost equally insistent consideration of the future. After the war we may expect an influx of new comers, many of whom will go on the land. The Association may well ask itself the question: "What can we do to assist in safeguarding the interests of those who occupy these lands and the quality of the land itself? Can we assist in creating a source of supply of pure, vital and productive seed in sufficient quantity to meet the needs of those who must be supplied?" We recall with sadness the vast areas in Western Canada which are now overrun with weeds as a result of negligence on the part of someone. We, therefore, feel that this is a time for deep and honest thinking; that it devolves upon us as members and as citizens to do all in our power to assist in safeguarding the welfare of this vast and wonderful estate and the happy inheritors who will occupy it.

In seeking a plan of action for the future we naturally look to the past for suggestion and guidance. Let us first of all, therefore, examine the progress which has been made during the six years 1910-1915 inclusive as regards the quantity of Registered and Improved Seed produced. (Nineteen hundred and sixteen is not included in this comparison owing to the abnormal conditions which prevailed throughout almost the entire Dominion). During the period indicated we find that there has been a steady and substantial increase in the acreage devoted to the production of Registered Seed. In 1910, 236 acres were devoted to the production of Registered and Improved Seed, yielding 4,576 bushels of cleaned seed. In 1915, 3,533·4 acres were occupied in the production of the above class of seed. This acreage produced 85,453 bushels of cleaned marketable seed. In 1910, 2,250 bushels of Registered Seed and 1,291 bushels of Improved Seed were offered for sale, while in 1915, 27,045 bushels of Registered Seed and 51,259 bushels of Improved Seed were offered.

The following table gives in detail the acreage and production during the years under consideration as well as those for 1916:

ACREAGE AND YIELDS OF REGISTERED AND IMPROVED SEED

	Acreage	Bushels produced	Reg. Seed offered for sale	Imp. Seed offered for sale	Total Seed offered for sale
1910.....	236	4,576	2,250	1,291	3,541
1911.....	785	17,211	10,100	6,531	16,631
1912.....	1,421	33,474	10,017	6,356	16,373
1913.....	2,149	67,771	23,139	42,869	66,008
1914.....	3,113	70,303	17,533	33,430	40,963
1915.....	3,533·4	85,453	27,045	51,259	78,304
1916.....	4,405·5	66,355	35,623	25,945	61,568

The figures given above do not express at all adequately the extension of the work of this organization. Only those in close touch with the members and with agricultural progress generally have any fair conception of what this work is really meaning to the country as a whole. Over 1,500 farmers are now working as members of the Association, endeavouring to do what they can to maintain a high standard of excellence in their field crops through the use of selected seed and to extend this benefit to others in the neighborhood. As time passes and as more Registered Seed becomes distributed throughout the country, speaking for itself as it does in no uncertain terms, the demand for this class of seed will continue to increase.

In this work the Association recognizes the value of local initiative and local responsibility. The securing of new members and the personal encouragement of these and other growers is therefore left for the most part with the provincial departments of agriculture. The keeping of records, issuing of certificates of Registration, issuing seed catalogue and conducting the final inspection of Registered seed offered for sale is, for obvious reasons, kept within the control of the headquarters staff of the Association at Ottawa. This arrangement seems on the whole to be working fairly well and we predict a continuous and very substantial increase in membership and in interest generally.

During the past year prizes were offered for Registered Seed shown at Provincial Exhibitions in Quebec, Ontario, Manitoba, and Saskatchewan. The Exhibition and Meeting for the Maritime Provinces held heretofore in the Winter Fair Building, Amherst, N.S., were not held this year owing to the fact that the building was being used for military purposes.

The quality of the exhibits shown at these exhibitions was well up to the average in spite of the abnormal season. Unfortunately the percentage of growers who exhibit is not so large as it should be. We would, therefore, take this opportunity of urging all members who succeed in harvesting reasonably good crops to prepare exhibits and to this extent assist in attracting attention to their work. These exhibitions have proven excellent media for advertising not only the work as a whole, but the offerings of those who have seed for sale.

At international exhibitions as well as in local and provincial contests our members continue to bring credit to themselves and to the Association. At the Eleventh International Soil Products Exhibition held at Enid, Oklahoma, our old friend Seager Wheeler succeeded once more in carrying off the sweepstakes for the world's best exhibit of Hard Red Spring Wheat, and also sweepstakes for the best two-rowed and six-rowed Barley and Field Pease. Mr. J. W. Lucas, of Cayley, Alta., one of our most progressive growers, succeeded in winning the coveted sweepstakes' prize for the best White Oats. It is worthy of note that all three prizes for White Oats were won by members of our Association, Mr. R. H. Carter of Fort Qu'Appelle taking second prize and Wm. S. Simpson of Pambrun, Sask., taking third prize. Mr. Simpson also won second place in the competition with six-rowed barley.

In connection with the exhibitions held in the different provinces of Canada, conferences of members were held in most cases, at which meetings valuable papers were presented.

The last report of the Association (12th Annual Report, 1915-16) was printed out of the Association's grant. Owing to the special need of exercising the greatest possible economy it was decided at our last meeting to make this report as concise as possible and to print a comparatively small edition. For this reason only 15,000 English and 3,000 French copies were printed. This report was distributed to members and applicants and to a special mailing list. All others desiring copies were required to apply for same, special notices being sent out concerning the report by the Publications Branch when distributing certain other publications. We wish to take this opportunity on behalf of the Association, of expressing our appreciation to the above Branch for the assistance rendered in connection with this distribution.

Secretary's Report

I have the honour to present herewith my Twelfth Annual Report as Secretary-Treasurer of the Canadian Seed Growers' Association. This report covers the operations of the Association for the year ending March 31st, 1917, and up to the present date (July 31, 1917).

During the past year, hand selections of seed were made by 163 growers as compared with 228 growers in 1915, 215 growers in 1914, 181 in 1913 and 153 in 1912. The names and addresses of those growers who made selections and sent in satisfactory reports are published in the prefix of this Report. Out of the above number, 112 have already been admitted to membership in full standing, so there now remains 51 who are entitled to election. I respectfully recommend that these gentlemen be admitted as members of the Association. Their names are as follows:—

Acorn, Elmer, McLeod Valley, Alta.
Arland, Geo. H., Lougheed, Alta.
Barr, David C., Cut Knife, Sask.
Bell, Donald A. S., Rathwell, Man.
Budd, Arch., Rush Lake, Sask.
Campbell, Alex. N., Avonlea, Sask.
Carr, Samuel, Paris, Ont.
Cheriton, Oliver, Assiniboia, Sask.
Coats, Harold, Dryden, Ont.

Dunstan, Thos., Assiniboia, Sask.
Fleming, Albert, Tara, Ont.
Galbraith, W. J., Phelpston, Ont.
Hardy, Lewis, Vidora, Sask.
Hart, Stanley, Parkbeg, Sask.
Hawkins, Robert, Windthorst, Sask.
Hedrick, J. H., South Woodslee, Ont.
Hinkley, Earl, Wilkie, Sask.
Howell, Harold, Onondaga, Ont.
Hume, E. Lorne, Florenceville, N.B.
Hunt, Harold J., Poplar Point, Man.
Johnson, J. Alex., Port Arthur, Ont.
Kelly, M. J., Eliott Vale, P.E.I.
Langrell Bros., Woodlands, Man.
Lees, Bernard C., Edgerton, Alta.
McCormick, R. J., Paris, Ont.
MacFayden, Edward, Cape Travers, P.E.I.
MacLaren, Gordon, Pipestone, Man.
MacLennan, A. D., Rock Creek, B.C.
McLeod, John, Harbour Centre, N.S.
McWhirter, D. C., Rock Haven, Sask.
Morin, Geo. E., Ste. Hyacinthe, Que.
Orchard, Geo., Halcyonia, Sask.
Paquet, O., Lorette, Que.
Penny, Clarence, Tilney, Sask.
Potts, Peter, Raymore, Sask.
Powell, R. E., Wisetown, Sask.
Rathwell, Geo., Ridpath, Sask.
Riley, R. D., Milford Bay, Ont.
Rivard, Donat, Clairvaux, Que.
Roberts, J. H., Earlton, Ont.
Secord & Son, H. S., Penobsquis, N.B.
Sharp, John, Haileybury, Ont.
Sim, R. A., Noremac, Sask.
Sinclair, John E., Emerald, P.E.I.
Snowden, T. W., Ouelletteville, Alta.
Sorby, Harold, Kedleston, Sask.
Stewart, Dan., Cairns, Alta.
Van Sen, T. C., Lewiswyn, Sask.
Vansickle, A. W., Cainsville, Ont.
Waddington, Ed., Alameda, Sask.
Wright, Norman, Fairmount, Sask.

The number of individual applications for membership which have been received during the year is 285 as compared with 132 during the previous Association year. In addition to these a number of "groups" of farmers have organized themselves into "Seed Centres."

The Seed Centre scheme is not meeting with quite the success that we anticipated in the beginning although some progress has been made. There seems to be a tendency on the part of farmers to prefer to work independently. In some provinces notably Alberta, the difficulty which has confronted the Provincial Department of Agriculture in inspecting the fields of individual growers who are located at distant points has resulted in special efforts being put forth to have these growers encourage neighbors to join with them to form Seed Centres where a considerable area would be devoted in a given district to the production of high class seed thus justifying the sending of an expert to examine and report on the fields. Some growers have been so far removed from a railway station as to render it impracticable to send an inspector to examine their crops. In the case of such men, we must for the time being, be content to give such encouragement and assistance as we can by correspondence.

The policy of leaving the field inspection work entirely to the provinces has worked out fairly well. In practically all provinces this work has been done in a satisfactory manner, in fact, all provincial officers without exception have co-operated heartily in the whole movement.

The following is a summary of the work of inspection for the year 1916:

	Mar. Dist.	Que.	Ont.	Man.	Sask.	Alta. & B.C.	All Provs.
Number of growers answering enquiry cards and stating that they wished to be visited	42	57	72	20	93	41	325
Number visited by inspector	51	28	91	16	89	16	291
Number of hand-selected seed plots operated in 1916	89	25	54	15	11	42	316
Number of growers making selections.	32	19	41	9	50	12	163
Average size of hand-selected plots in case of cereals (acres)	·23	·45	·54	·36	·35	1·55	·58
Total areas devoted to hand-selected plots (acres)	16·03	11·27	29·05	5·42	39·06	65·07	165·90
Total areas devoted to multiplying fields (acres)	605	212	683	359·75	2,010	535·75	4,405·50
Total amount produced on multiplying fields (bus.)	13,337	5,345	11,006	3,745	21,397	11,525	66,355

The inspection of thrashed seed produced and offered for sale by members has been performed by temporary inspectors employed directly by the Association. These inspectors with one or two exceptions have been the same men as those engaged during the previous year. The work of these officials has been satisfactory on the whole as they have for the most part been very strict in seeing to it that all seed sealed in sacks has been well up to the high standards set by the Association. In previous years we have had a good deal of difficulty in getting members to clean and grade their seed properly but during the past season we had comparatively little trouble, in fact there seems to be quite an improvement along this line. A letter from the officer who did our inspecting work in Prince Edward Island may be quoted as representing quite fairly the situation prevailing in most of the provinces. The following is an extract from this letter:

"I think the grain was a little better graded than last season, but there is still some room for improvement. The grain was very pure as to variety this season, there being no other kinds mixed in except in one case where I was obliged to refuse sealing.

"The members are doing better work with their machines by securing a wider range in the sizes of screens than are usually supplied by the manufacturers."

The chief difficulty connected with the inspection of seed in sacks at present is that of expense. While it seems absolutely necessary to the success of our work that all Registered Seed be examined and sealed in sacks by an expert, yet the expense of carrying this into effect seems somewhat high compared with the amount of seed actually inspected. Where Seed Centres exist, this difficulty does not obtain, but in the case of isolated growers who are located many miles from the last place of visitation by the inspector, the situation is different. It seems difficult to work out any general scheme by which to overcome the difficulty under present conditions. In some cases we have been able to cut down expenses by having the seed inspected at its destination where this can be reached more conveniently. This practice, however, is a more dangerous one although it is probably the only solution to the difficulty.

WORK WITH POTATOES

The extent of special work aiming at the production of high class seed potatoes in any considerable quantity in Canada is not satisfactory. This is probably due to the labour shortage and to the difficulty and risk in the storing and handling of seed potatoes. Some fairly good work is being done in a small way by a few growers, but in no centre have we been able to obtain as large and reliable a supply of seed as we would like. This condition will probably prevail, more or less, until after the war, although in Ontario the Provincial Department proposes taking steps to improve the situation.

WORK WITH CORN

The production of Registered Seed Corn which necessarily is limited chiefly to Ontario and parts of Quebec is not in as flourishing a condition as it might be. It is true we have a considerable number of growers giving a good deal of attention to this crop, but the supply of Registered Seed available each spring is pretty small. What is clearly needed in this field is a Corn Specialist who will devote practically all of his time to promoting a greater interest in the production and use of better seed corn. Such a specialist has recently been appointed by the Provincial Department of Agriculture.

SEED CATALOGUE

Our regular preliminary price list containing the names and addresses of growers, the varieties and approximate quantities offered was issued early in the Autumn, while in early winter our regular Spring catalogue was published to the extent of 3,000 English, and 1,500 French copies. These were widely distributed and were considerably in demand.

The problem of increasing the production of Registered Seed is closely allied with that of providing better marketing facilities. This at present would seem to be a matter which can be handled best by the provinces.

In September of 1916, a Conference of growers and others interested in the production of high class seed was held at the University of Saskatchewan in Saskatoon and was fairly well attended. The object of the gathering was to devise ways and means for securing more widespread recognition among the farmers of Saskatchewan of the value of improved seed and the best means to be taken in the handling and marketing of this seed. The opinion was expressed that up to the present time the importance of registered seed has not been as fully recognized as it should have been. This fact coupled with the fact that many growers, for financial reasons, are unable to hold their grain to be sold for seed in the spring was held to be responsible for the common neglect of the use of good, pure clean seed among farmers in the West generally. Some of these difficulties, it was believed, might be eliminated by the formation of a provincial branch in the province combined with a more vigorous educational campaign throughout the country.

The University plans to produce Elite Stock Seed in considerable quantities and already a good deal of this seed has been utilized by new members as foundation stock.

A Committee consisting of W. W. Thomson, John Mooney, and J. S. Fields of Regina was appointed to consider the formation of a Saskatchewan branch of the Association, the said Committee to report at the Convention of the Provincial Agricultural Societies which was held in Saskatoon in January.

During the year, your Secretary has had an opportunity of discussing the work of the Association before a number of important gatherings. Among these I might mention the Conference of the District Representatives of Ontario which was held in Toronto last summer, the Lambton County Corn Growers' Association's Annual Convention which was held in Petrolia in February, and the Annual Meeting of the Pontypool Seed Potato Centre.

Our correspondence during the year has been rather above normal, there being a somewhat larger number of inquiries for information and assistance in connection with the growing of Registered Seed. Below is a typical letter received from a gentleman who signified a wish to join the Association:

"Dear Sir,—

I am enclosing herewith application for membership in the C.S.G.A., which I trust will be accepted.

Since reading your literature on the growing of registered seed, I can readily see the advantage not merely of being a member of the C.S.G.A., but of growing good seed, which in turn means larger returns for our labours and more profit in grain growing.

May your efforts be crowned with success."

The number of men of this type wishing to take up special work as members is decidedly increasing, which is a matter of very great satisfaction and encouragement.

In our last report reference was made to a competition launched in Western Canada by the Grain Growers' Guide of Winnipeg. In this competition the best Registered Seed available was offered as prizes in small quantities to farmers who would collect a certain number of subscriptions. Up to date 896 farmers have won some of this seed, and special efforts have been made both by the Guide and by our Association to induce these men to become members so as to make the best use of the seed they received. These efforts have been surprisingly fruitful in that we have received a large number of applications from this source. We would like to take this opportunity of expressing our appreciation on behalf of the Association, of the energetic efforts of Mr. Geo. F. Chipman, Editor of the Guide and the prime mover in connection with the competition. Mr. Chipman has some further plans under consideration, and we feel confident that an immense amount of valuable work will be accomplished throughout the West as a direct result of this scheme.

The value of registered seed as compared with ordinary seed continues to demonstrate itself. The reports received all indicate the superiority of the former. The following is a quotation from a letter received from a gentleman who purchased Registered Seed, and is typical of many others which might be quoted:

"All the wheat in this district was badly rusted, but the grain in this plot was a distinct improvement in this respect over any other grain I have seen here. The yield (25 bushels per acre) is 12 bushels more than my average."

In the discussion which followed the presentation of these reports, the opinion was expressed that more systematic work should be done with potatoes. Dr. Zavitz referred to the excellent evidence now available to show the superiority of seed potatoes grown in the cool moist districts of New Ontario to potatoes grown further south. He believed that the Association working in co-operation with the Provincial Department had an excellent opportunity of creating a source of supply of high class seed potatoes in the northern district mentioned. The Secretary pointed out that action toward this end had already been taken and he confidently expected to see the work advance rapidly in the future, especially since the Provincial Department has now arranged to promote the work more aggressively.

In view of the information now available re the behaviour of potatoes, the Association agreed that the best method for the average farmer to follow in the production of potatoes, either for seed purposes or for food, is to procure the very best stock of the best variety in a Northern District, and in the propagation of this seed to adopt the system of continuous selection of superior hills as already required by the regulations followed by members. The evidence available up to the present time demonstrates without question the value of this system. It is expected, however, that in many cases farmers can to advantage bring in a fresh supply of northern grown seed from time to time. This will depend very largely upon the location of the farmer and the attention paid to the choice of seed.

Mr. Nunnick of the Conservation Commission referred to the prevalence of the Loose Smut in barley this year. In Canada this disease has not heretofore attracted any considerable attention, as a result of which it has not been the practise of farmers to treat their seed barley for smut. Dr. Zavitz and others reported that the Formalin treatment for oats has been quite ineffective in the case of barley smut. The best method of handling the latter disease was to treat with hot water, submerging the barley for five minutes in water at a temperature of 125° F.

Mr. Moe, of the Experimental Farm, reported the prevalence of the disease known as *Helminthisporium*, which attacks the leaves of barley, producing an effect very similar to that caused by ordinary rust. For this disease no effective treatment has yet been discovered.

In the commercial handling of seed, it was recommended that purchasers be urged to treat their seed in all cases. The treatment of seed prior to selling is not practicable, since the effectiveness of the treatment diminishes rather quickly where seed is not sown. The use of new clean sacks for seed grain was also highly recommended.

Systems of cultivation to prevent the spread of certain weeds were discussed at some length, it being pointed out that most weeds could be overcome quite easily by the adoption of the proper methods of rotation and thorough cultivation.

At the Experimental Farm the members made a careful examination of the various crops under test, a special study being devoted to the breeding work. Some very promising crosses made by Dr. Saunders and his assistants created a great deal of interest. A feature of this work which proved of special interest was the extent to which certain varieties were producing variations. The existence of these aberrant types goes to prove the value of the system of continuous selection and roguing adopted by the Association.

PART II.

Contributions.

Meeting of Ontario Members at Guelph, December, 1916

SOME VARIETIES OR STRAINS OF POTATOES

By Dr. C. A. Zavitz, O.A.C., Guelph.

In discussing the above subject, Dr. Zavitz reviewed the contents of the Bulletin which he had recently published, entitled "Potatoes." He pointed out that the varieties which on the average of a series of years had given best results at the College were not the varieties which had proven to be best during the past season. This, however, might be expected. He referred to the *Dooley* potato as being particularly promising at present. This variety is grown extensively in Middlesex, Lambton and to some extent in Wentworth Counties. It is a roundish potato and has been giving very good results in yield per acre. It is also of fair quality. During the past season fifteen varieties had been specially tested at the College, forty points being allowed for mealiness, forty points for flavor and twenty points for appearance. The *Dooley* potato in quality ranked as medium. The *Davies Warrior* for the average of the nine preceding years stood at the top of the list in quality. During the past season, which had been particularly severe, it had not done so well. The *Extra Early Eureka* he considered one of the very best potatoes. It is a comparatively early sort, and is of good quality. The *Empire State* he had found to be one of the best potatoes in quality, and was also an excellent yielder but is rather subject to rot.

He reported that a number of selected strains of potatoes were very prominent. *Davies Warrior*, for instance, had given an average of one hundred bushels per acre more than the sort from which it was selected.

Reference was made to an experiment which started some years ago to find out the difference between mature potatoes and immature potatoes for seed. The potatoes were planted two weeks apart, and the seed from each lot kept for planting the following year. The average results obtained for a number of years showed that the immature potatoes were superior for seeding purposes, producing higher yields than the mature seed. He believed that half-grown potatoes were better for seed than those fully matured.

An interesting comparison is being made in the results obtained from seed procured from New Brunswick and different places in southern Ontario. In this test the northern grown seed proved very superior to that obtained from the southern districts.

THE POTATO SITUATION IN ONTARIO

By W. F. Elliott, Galt, Ont.

The speaker referred to the fact that Ontario imported potatoes from the East and to some extent from the West, and believed that this was not necessary in view of the fact that areas well adapted to potato growing were to be found in the Muskoka District and New Ontario. Mr. Elliott deplored the existence of so many different varieties of potatoes. In his opinion the large number of varieties now grown had mitigated seriously against the industry. If a car of potatoes is loaded with three or more different varieties, a smaller price has to be taken for that car.

The speaker stated that he is a great believer in home grown seed and was also of the opinion that most potato growers plant seed which is too small.

METHODS OF PRODUCING PURE SEED

By WILL C. BARRIE, Galt, Ont.

The advantages of using pure seed were first pointed out by the speaker, who believed that the returns from crops grown from such seed were so much greater than those from ordinary seed, that any expense incurred in buying or growing such seed was met many times over by the extra returns from the crop. This fact has been demonstrated many times. One case was mentioned. Four years ago the members of their Farmers' Club ordered their seed corn together. The majority of them were content to purchase seed costing $1.50 per bushel. He, with two others, ordered Kiln-dried corn on the cop to be shipped in crates at $3.00 per bushel. He and his two friends had been so well satisfied with the results that they have ordered no other kind since. In the Standing Field Competition with corn the only prizes that were won by members during the year mentioned were first, second and third prizes, all of which were won by those fields planted with the more expensive corn. The speaker believed he could have paid $15.00 per bushel for his seed and still have had cheaper seed than those who were content with the seed which cost them only $1.50. Several instances, where the results from sowing registered wheat and oats were almost as marked, could be mentioned.

The weed problem was still a serious one for the farmer, and he urged that still greater care be exercised in seeing that no noxious weed seeds are included in the seed sown. The insurance against this when buying registered seed was almost absolute. The speaker believed that those who buy registered seed would likely take an added interest in the growing of their crops, just as the farmer who takes greater interest in pure-bred live stock than in grades.

One of the reasons why more farmers had not gone into the business of producing registered seed for sale was the fact that the difference in price between ordinary seed and registered seed had not been enough to warrant the extra work. When one considers the extra work that is required in hand selecting grain for the seed plot, in picking out impurities in the standing grain, in keeping the different kinds absolutely separate, and in cleaning the seed up to standard required for registration, together with the cost of inspection, it is not hard to understand the attitude of the great majority of farmers.

Few farmers have the equipment necessary to make the production of pure seed possible. It is very difficult to keep the different kinds of seed from becoming mixed when threshing has to be performed by a travelling outfit. The scarcity of labour, however, is doing much to increase the sale of the small threshing outfit for the use of individual farmers in company with a neighbor.

When starting the work of growing registered seed, the necessary selection of heads is made the first time by going through the fields with a sack and picking off the heads which seem to be best. Owing to lack of help it was not always convenient to do this, and sometimes the selection was made from the sheaves in the stook. At present the plan followed was to select first a number of sheaves from the best part of the field and to lay these away in the barn by themselves, so that the selecting might be done at a more convenient time.

Mr. Barrie stated that he was particularly fortunate in having his own thresher, and in having facilities for threshing and cleaning seed so that the different kinds had very little chance of becoming mixed.

Reference was made to the assistance rendered the work in the speaker's district by the wheat centre and the O.A.C. No. 72 oat centre. These seed centres are so operated that it is only necessary for one member of the centre to do any selection work.

FARMING METHODS IN THE PRODUCTION OF SEED CORN.

W. J. SQUIRRELL, O.A.C., Guelph.

The speaker referred to the growing importance of the corn crop in the Province. During the past ten years there had been an increase in acreage, in the case of corn, of over 50%. In the production of corn three things should be emphasized, namely;—first, the selection of a variety which will mature year after year in the district grown, this applies of course to flint corn grown for husking; second, the variety or strain chosen should be one known to be a high yielder and at the same time should have sufficient merit to enable the grower to offer the corn for seeding purposes should he so desire; third, the problem of producing or procuring seed possessed of high vitality is perhaps the most important of all.

It is a well known fact that a large amount of seed corn of low vitality is planted each spring. No corn should be planted without first having been submitted to germination test. The making of such a test is a comparatively easy matter.

Fall ploughing for corn is to be preferred to spring ploughing, especially where the land is heavy.

The experiments conducted at the College, as well as the experience of the best corn growers, all emphasize the importance of cultivation for corn. The greatest total weight and the greatest weight of ears were obtained at the College where the cultivation was deep early in the season and became shallower as the season advanced. Where comparison was made between planting in hills and in drills, it was found that on the average about one ton more of total yield was produced in drills than in hills. On the other hand planting in hills seemed to favour the development of ears.

GRADES OF SEED CORN.

By E. D. EDDY, Seed Branch, Ottawa.

Prior to 1915 there were no special grades or standards for seed corn. During the winter of 1915-16 the seed Branch proposed a special voluntary Seed Corn contract agreement, which was submitted to the Ontario Corn Growers' Association at its annual meeting and approved. Under this agreement three grades were defined: Extra No. 1, No. 1 and No. 2. Growers who had seed corn to sell and who wished to have it graded and given publicity by the Dominion Seed Branch signed an agreement with the Department whereby they undertook to put their corn under the grades mentioned and to dispose of it under certain guarantees. During the season there were practically no complaints from purchasers regarding the quality of any of the corn which was sent out by the various seed growers under the agreement.

During the present year, efforts had been made to obtain suggestions from growers, purchasers and others as to the advisability of continuing the agreement or how this method of marketing seed corn might be promoted still further. About fifty replies were received from growers who had been communicated with. The general trend of the comments in the replies received was decidedly in favour of continuing the system.

The main objection which had been offered against the system is that it encouraged growers to purchase corn on the cob exclusively, whereas a great deal of excellent seed corn is sold in the shelled condition. If something could be done whereby, Ontario grown seed corn that is shelled might have similar recognition as corn on the cob, many growers of seed corn, he believed, would be able to put reasonably good seed on the market at a price considerably below that of corn on the cob. Certain difficulties would be met with were the scheme extended to include shelled corn, but these should not be insurmountable.

W. J. W. LENNOX: Regarding the objection which had been offered by one of the correspondents re grade Extra No. 1 being required to contain at least 95% of well developed ears, it seems to me we can overcome this difficulty by requiring this grade to contain only ears which are well matured and well developed, making no reference to the percentage of sound ears. I would move the following resolution; "That No. 1 seed corn on the cob shall consist of sound, well-developed ears that are reasonably uniform and typical specimens of the variety named; it must be carefully selected and be well cured; and the germination on the basis of the average of ear tests must not be less than 95%."

This motion was seconded by Mr. Herold and carried.

Some discussion took place regarding grade No. 2; it finally being moved by Mr. B. R. Cohoe, seconded by Mr. Fletcher and carried, that grade No. 2 be defined as follows:

"No. 2 seed corn on the cob shall consist of sound ears that are reasonably uniform and typical specimens of the variety named; and the germination, on the basis of the average of ear tests, must not be less than 85%."

It was moved by Mr. Knister and seconded by Mr. Herold that the two grades above defined be recommended to the Department for the ensuing year, and that the agreement with the Department be conducted for another year.

Mr. Bigger urged that the question of including shelled corn in the agreement be very carefully considered before taking action.

Mr. A. McKenny agreed with Mr. Biggar and expressed the opinion that it is dangerous to meddle with the shelled corn business at all. The difficulty in his opinion would be that American corn, which comes into the country shelled, usually has a better appearance than Canadian grown corn and contains less moisture and would probably be safer to ship in that condition than would the corn grown in Canada. No. 4 American corn, for instance, would resemble what we are selling for seed under best conditions, but the probability would be that the variety would not be so suitable for our Canadian conditions. Mr. Bigger recited an experience he had some years pevious with corn which he had brought into Essex County from Wisconsin. The corn arrived on the cob and in splendid condition. About a month previous to planting the corn, was shelled and put in sacks. At planting time the corn was moulding in the bags.

Mr. Eddy stated that certain ensilage growers had complained that there was too much difference between the price of corn on the cob and the price of shelled corn, and that they were urging for some guarantee to come with corn which was shelled. Mr. McKenny believed it too dangerous to give any sort of guarantee with shelled corn.

Mr. J. O. Duke expressed the opinion that growers would find it difficult enough and dangerous enough to confine themselves to the disposition of ear corn alone, without considering shelled corn.

Moved by Mr. McKenny and seconded by Mr. Maynard that the meeting recommend that the Seed Control Act be amended so that the minimum standard for germination for corn be 80%. Carried.

Seed Work in Quebec.

By THE MINISTER OF AGRICULTURE, Quebec

During the fiscal year commencing April 1st, 1916 and ending March 31st, 1917, seed selection work has been entrusted, for the greater part, to the Co-operative Society of Seed Producers of Quebec, under the supervision of the Department of Agriculture. This Society owns a warehouse at Ste. Rosalie Junction, in which are installed two large screening machines marked "Clipper" and two grading machines which came from France. These machines are worked by electricity.

The seed to be cleaned is first of all passed through one of these screens to take out small particles and other impurities and then through the grading machine for closer screening. By these two operations the original quantity is reduced from 30% to 35%, that is, out of 100 bushels of seed passed through these machines about 65 to 70 bushels of good seed are obtained ready for use.

The quantities of seed obtained by this procedure during the year were as follows:

Oats bus.	Wheat bus.	Barley bus.	Vetch bus.	Buckwheat bus.	Peas bus.	Beans bus.
11,952	1,182	1,570	225	230	155	50

In addition to the above seed, 4,500 bushels of different varieties of seed, comprising timothy and clover, were handled.

The seed handled by the above Society from April 1st, 1916, to March 31st, 1917, therefore, amounts to a total of 19,864 bushels.

SEED CLEANING IN BONAVENTURE

With a view to encouraging farmers who are widely scattered in the East of Quebec to use the seed produced on their own places for seeding purposes, we have authorized this year Mr. J. N. Albert, District Representative of Agriculture in Bonaventure and Gaspé, to give demonstrations of seed selection and cleaning in some sections of his district. This work was carried on by Mr. J. B. Roy, B.S.A., under the supervision of Mr. Albert. A. No. 1B "Clipper" was used, this being furnished by the Department.

The table given below gives an idea of the work done by Mr. Roy:

DEMONSTRATION OF SEED CLEANING

Parish	Number of farmers who had their seed screened	Quantities Cleaned					
		Wheat	Oats	Barley	Clover	Timothy	Other varieties of seed
		bus.	bus.	bus.	lbs.	lbs.	bus.
St. Alexis	48	67	564	194	0	250	347
St. Andre	18	38	150	50	0	0	310
St. Alphonse	31	29	157	30	560	1,500	221
St. Charles	40	172	50	49	3,967	700	185
Bonaventure	49	75	175	95	1,840	1,990	350
Total	186	381	1,096	418	6,367	4,440	1,413

The "other varieties" mentioned were made up as follows:—

Peas	285 bus.	Rye	125 bus.
Buckwheat	220 "	Mixture	708 "
Vetch	75 "		

The total seed cleaned in the five districts:—

Seed grains.......3,308 bus. Small seeds..10,807 lbs.

These demonstrations were much appreciated by producers of good seed. All of these farmers have seen the great necessity of preparing their seed in order to increase production and destroy bad weeds, and in this way be able to make use of their own seed without having recourse to getting it from long distances, which is so costly on account of transportation.

Quantity of Seed handled by the Co-operative Society of Ste. Rosalie	19,864 bus.
Quantity of Seed cleaned in different parishes	3,308
Small Seeds	10,807 lbs.
Total Handled	23,172 bushels of seed grain. 10,807 lbs. of small seeds (clovers, etc.)

THE QUEBEC CO-OPERATIVE SOCIETY OF SEED PRODUCERS.

By N. Savoie, Quebec

In 1914, there was organized in the Province of Quebec with headquarters at Ste. Rosalie Junction, a society known as "The Quebec Co-operative Society of Seed Producers." The object of this organization was to produce and handle in adequate quantities high class seed for use on Quebec farms. The Society is composed of farmers who must be stockholders. Each member must own at least ten shares of ten dollars each. Those who prefer to do so may pay their stock in full. Others must pay at least ten dollars per year until the full value of the stock is paid up. The Society has paid so far 6% interest on all money paid in by stockholders. The operations of the Society are controlled by a board of five directors elected amongst the members. Mr. Louis Lavallée, a practical farmer, who has devoted a good deal of attention to seed work, is the enthusiastic manager. The salary of the manager and his assistants is paid by the Department of Agriculture for the Province. The services of these assistants are available for other Provincial work during the slack season of the year. On the other hand a good deal of assistance is rendered the Society by Provincial district representatives or "Demonstrators" during the summer in inspecting crops of seed grown by farmers for the Society. The Society is the owner of a warehouse and cleaning plant at Ste. Rosalie Junction. Money for the building and machinery was borrowed from the Provincial Government without interest. This money is to be paid back as the business of the Society develops. The building cost $15,000.00 and the machinery $5,000.00. There are now 437 members, who have purchased a total of 4,370 Ten Dollar shares. The total amount paid up to date is $11,884.

The aim of this Society is ultimately to handle registered and first-class seed and to be the chief distributing station of same in the Province. Last spring, for instance, they purchased practically all the registered seed produced in Quebec, and also brought in several hundred bushels of registered seed from other provinces. Registered seed is supplied to farmers for propagation for this Society. Heretofore no definite contract has been entered into between the Society and the growers, but it is proposed in future to contract definitely with growers to produce seed at a given price. Growers supplied with registered seed for propagation are encouraged to become *members of the Canadian Seed Growers' Association and to follow its methods of seed growing* in order that the seed produced may, if up to standard, be accepted for registration. The above Association and the Society are working in close co-operation and it is confidently expected that a great deal of valuable work will be accomplished in the Province.

The organization may possibly be open to certain criticism on account of the amount of financial aid extended by the Government. If there existed private concerns which were disposed to carry on their business with the same amount of care as that exercised by the Co-operative Society, there might be justification for criticism. In view of the fact, however, that sufficient seed of the proper quality and breeding was not being made available in Quebec for the need of her farmers, the action taken appears to be warranted. It is possible that this course might not be feasible in some of the other Provinces in the Dominion. Whether this be true or not the principle embodied in the Quebec scheme will at least be suggestive to all who are concerned in the problem of increasing the proportion of high class seed used on Canadian Farms.

WORK OF THE ASSOCIATION IN NEW BRUNSWICK

By Wm. E. Palmer, Scotch Lake, N.B.

The farmers of New Brunswick are beginning to realize more and more the great importance of good seed, and are putting forth quite an effort to procure seed of good quality. One of the sources through which they are able to procure good, pure seed is through the C.S.G.A., and its members. The Department of Agriculture is also assisting the farmers considerably in the production of good seed by holding Seed Fairs and Standing Field Crop Competitions. This year the Department bought 11 car loads of seed grain, mostly Oats and Wheat, the greater portion of this coming from Prince Edward Island. This was distributed throughout various parts of the Province and sold to the farmers at cost price. Therefore, taken as a whole, New Brunswick was pretty well supplied with seed grain of fair quality. There are a few members of the C.S.G.A. doing specially good work, while others are not doing so well. There are other growers doing hand-selection work who have not yet become members of the Association. No doubt some will join in the near future. I have talked with a goodly number of farmers within the past two years who have said: "I have been thinking about joining the C.S.G.A. I believe it is a good Association." Unfortunately that is about as far as the most of them ever get. There are other farmers again who will say: "Oh, I am so busy, I could never get time to do any hand selection." This is very true in a sense. I suppose there are very few members of this Association who really have the time for doing hand-selection work and still we take time. And why? Because we feel assured that we are well paid in so doing.

The New Brunswick Potato Growers' Association is starting a good work, aiming at the improvement of potato production. They are conducting a number of test plots at different points throughout the Province. Any farmer who wishes to have his potatoes tested supplies a free sample. The idea is to test out one strain against another strain. This work is usually carried on by some Agricultural Society, or some member of the Society. First a plot of ground is selected which is uniform throughout. Then a certain number of hills are planted of each strain, usually 150 hills, under exact conditions. These receive the same treatment throughout the season. At harvest time each row is dug separately and weighed separately, the weight of the merchantable tubers being kept separate from that of the culls. By this method it is easy to ascertain which strain is the highest producing strain.

In the year 1916, there were nine different test plots throughout the Province. The test is being carried on again this year in the same way with an additional test at the Experimental Farm. The strains that are being tested are mostly from the Green Mountain and Irish Cobbler varieties. This test work is being carried on under the directions of Mr. G. C. Cunningham, Plant Pathologist for New Brunswick. Mr. Cunningham is also Secretary of the New Brunswick Potato Growers' Association.

Work of the Association in P.E.I.

By W. H. McGregor, Miscouche, P.E.I.

The work of the Association has been carried on by a small number of growers and members of the Summerside Seed Centre with gratifying success. The crop of Oats in 1916 was good and of good quality, sown under good conditions and realized good prices very readily. Inquiries coming at the beginning of January resulted in sales, the purchaser thus having plenty of time to get his grain early. We have been fortunate in this Province to have had good inspectors ever since inspection was inaugurated, hence there have been satisfied customers in all cases.

Nothing is being done in the selection of potatoes in this Province, but much more care is being given the crop than ever before. There are a number of power spraying machines, purchased by from six to fourteen farmers who have provided themselves with Bluestone for the making of Bordeaux. Late Blight has been taking a very heavy toll for some time, but not much attention has been paid to this crop in the past owing to the very uncertain market conditions. Just now the prospects are good for a crop of potatoes, but they are bad for handling a large crop. Transportation facilities were never so poor as at the present time. It seems to be of little use to preach increased production, and leave the stuff on the hands of the producer for want of transportation facilities. I could relate some serious losses suffered last fall where the parties were only saved from ruin by the rising market.

Meeting of Members of C.S.G.A. in Manitoba

Winnipeg, Man., February, 1917

The annual meeting of members of the Canadian Seed Growers' Association resident in Manitoba was held this year in the centre hall, Industrial Bureau.

Professor Bedford occupied the chair and in the course of his opening remarks he greatly emphasized the need of planting good seed, and praised the provision made for giving power to municipalities to secure seed and help the farmers in this way. He paid a warm tribute to the work of Dow Brothers, of Gilbert Plains, as producers of good seed. He recommended that no wheat be seeded that weighed less than 58 pounds per measured bushel.

Formal business of the association occupied the first hour, after which the President, Prof. T. J. Harrison, presented his annual report as follows:

President's Report

The season of 1916 will go down in the crop history of the Province of Manitoba as one of the worst years in cereal crop production that has been experienced. The blackstem rust is responsible in round numbers for the decrease in the total wheat production of the province of forty millions of bushels. It also reduced the quality from No. 1 and No. 2 Northern to Nos. 5 and 6 and feed. This meant an enormous loss to the commercial grain growers, but it was off-set to a large extent by the high prices. The producer of registered seed was not so fortunate, because the quality of his seed was often so poor that he failed to register it.

Some of the growers have enlisted, and others have their sons overseas doing their bit for the empire. This has meant a discontinuance of the work in many places. Other growers are not registering their seed this year because of the scarcity of labor preventing them from cleaning it. While this means a serious loss to the individuals and the association, they all stand willing to do considerably more if they can hasten victory and vindicate right and justice.

Your executive held one meeting during the year. At this meeting means of encouraging the establishment of seed centres were discussed. The rules were secured, as well as a copy of the Manitoba Co-operative Association Act, the idea being to have these centres registered as co-operative associations, so that while the rules laid down by the C.S.G.A. were to be followed out, the centre could purchase seed and sell their product co-operatively. An attempt was to be made to organize a banner oat centre at Gilbert Plains, with Dow Brothers as selectors; a red fife wheat centre at Miami, with John Wiener as selector; banner oat, Marquis wheat, and O.A.C. No. 21 Barley centre at Killarney, with Nelson Smith, superintendent of the Demonstration Farm, as selector. Due to the scarcity of labor and of unfavorable weather conditions, very little was done in an endeavor to establish a centre at the first two places. Mr. Smith at Killarney secured registered Marquis wheat from Seager Wheeler, registered banner oats from Dow Brothers, and registered O.A.C. No. 21 barley from Thos. Waugh, Prince Edward Island. He made selections and will be in a position next fall to supply his multipliers with elite stock seed. There is also a possibility at a later date of organizing centres at Roblin and Stonewall. Messrs. Sirett and Robinson, the agricultural teachers at both these points, are greatly interested in this line of work. They are, however, working with the younger men or boys. Last year they supplied quite a number with registered Marquis wheat. They gave the growing of it careful supervision last year, but due to the poor quality, practically no hand selections were made.

Interesting Boys

At the meeting a year ago it was my pleasure to outline a scheme of interesting the boys throughout the province in the work of the C.S.G.A. Following out this outline, the Extension Department of the M.A.C. supplied 165 boys with either registered Marquis wheat, banner oats or O.A.C. No. 21 barley. These boys were given instructions during the year how to handle their plots, but due to the unfavorable crop conditions many of them became discouraged, and only 16 made hand selections. These 16 boys will have sufficient hand-selected seed to sow one-quarter of an acre. If they continue this work next year, I will have very great pleasure in recommending them for membership in the C.S.G.A. While the results from this work last year were somewhat disappointing, it can be accounted for by the rust. This year, however, we are planning to supply some 300 boys with seed. We will follow them up more closely, as we have W.T.G. Wiener spending most of his time on this line of work.

As mentioned previously, a number of members have applied for membership in the association. In 1915, Manitoba had sixty applicants and three members admitted. These figures, however, do not correspond very favorably with those from other provinces. I would, therefore, be pleased to have the meeting discuss ways and means of stimulating interest in the association's work. During the summer the field inspection work has again been very ably done by the district representatives and agricultural high school teachers. To them I wish to extend the thanks of the association for their efficient work.

In conclusion, while the season of 1916 has been discouraging, the association should not be discouraged. If the individuals will do their share in boosting, we should have as many or more members and a better quality of members in Manitoba than we have in any other province.

Secretary James H. Bridge, cerealist for Agricultural College, presented the secretary's report:

Secretary's Report

From the standpoint of crop conditions, the past season has been a rather disappointing one to the growers of pure seed as well as to the average farmer. Unfortunately, it seems to be true that rust is no respector of persons and attacks alike the superior strains of the seed grower and the more common stocks on farms where no attempt at seed selection is made.

What To Do

The question has arisen as to what a member should do in case his crop is badly rusted. I have in mind one case in which the grain is quite unfit for seeding purposes. In such a circumstance I would suggest that an attempt should be made to preserve the strain by sowing a small area, so as not to lose the advantage of all the hand selection work that has been bestowed upon it. In many cases it will be possible to grade the grain so as to secure a reasonably good sample of seed. Where this is the case it will certainly be preferable to introducing new strains of inferior quality with the attendant danger of introducing weed seeds, foreign varieties, etc.

During the past year the plots of 16 members were visited, in addition to eight boys who were last year supplied with registered seed by the Extension Department of the College.

During 1915, fifteen members were visited. While there has not been very much increase in the number of members, big work has been begun among the members of the boys' and girls' clubs following the plan outlined by Prof. Harrison in a paper on the subject read before the annual meeting of the society last year. Some 165 boys were supplied with registered seed procured from members of the association. During the growing season these were kept in touch with by the college staff. Several different question forms were prepared and sent out to the members of this Junior C.S.G.A. with the object of drawing their attention to the interesting phenomena which accompany the growth and development of plants. From the answers received to these questions it is quite evident that these boys learned a great many things about plant life of which they had previously been unaware. It is felt that these studies should do much to develop a deeper interest in the things by which the boys and girls on our farms are surrounded. All of these boys were visited during the season by an officer representing the association, who was in a position to help the boys with suggestions as to conducting the work.

Bulletin

In addition to this A. R. Judson, B.S.A., who attended to the secretarial duties of the association during my absence, prepared a bulletin entitled "Hand Selection and Harvesting of the Seed Plot" a copy of which was sent to each member of this Junior society.

In the fall of the year each boy was sent a card to be filled in giving the yield and quality of the grain grown during the season, and requesting that a sample be sent to the Department. In most cases this was done and the results indicate that the boys are quite interested in the work. The samples were analyzed for purity and tested for germination and the reports mailed to the respective owners, with advice as to the suitability of the grain for seeding purposes.

Girls Admitted

This work is being continued this year under the direct supervision of W. T. G. Wiener, B.S.A., who has been appointed Field Husbandry Representative on the Extension staff. Last year only boys were admitted to membership; this year it is proposed to encourage the girls to take up the work also. The results of this new department have been very pleasing and, although the crop season militated against its success, it is felt that it will prove a great stimulus in interesting the youth of our province, who will soon be its leaders in the work of the C.S.G.A. It is impossible to estimate the good that such work may have on the future of our agricultural progress.

Election of Officers

Prof. T. J. Harrison was re-elected president. George Dow, Gilbert Plains, vice-president; James H. Bridge, Winnipeg, Secretary. District representatives: Northwestern district, W. J. Boughen, Valley River; eastern district, John Wiener, Miami; southwestern district, Nelson Smith, Killarney.

E. Robinson, agricultural teacher, Stonewall, spoke briefly of the work he was doing in trying to interest the young men of his district. He had been successful in getting boys started. He mentioned especially Douglas McIntyre. Mr. Robinson has been holding night classes at Stonewall and found young men willing to spend 2½ hours weekly on this work. A resolution committee was appointed.

Effects of Cultural Methods

Prof. T. J. Harrison presented an interesting paper on "Effects of Cultural Methods in the Production of Wheat in 1916".

In a test of six varieties Pioneer headed the list in regard to yield and weight per measured bushel. Prelude showed considerably less rust due, no doubt, to the early ripening of these varieties. In normal years Marquis stands higher and as this variety is only down to second place in yield, it is the one recommended, because in rust years it gives a good yield of fair quality and in normal years highest yield and best quality. The Minnesota 169, a selection from Blue Stem, was at the bottom of the list.

Selection of Seed

Canadian Seed Growers' Association first generation seed gave three bushels to the acre more than common seed and the grade was considerably better. A strong argument for registered seed! The common seed gave 36 bushels to the acre of No. 4 Wheat, while registered seed in adjoining plot gave 39 bushels grading No. 2 northern.

In the matter of common seed an increase of six bushels to the acre was the result of cleaning it three times and the sample was improved one grade.

Seed Testing

Professor Harrison stated that numerous tests of germination strength had been made of the low grade wheats and that the results indicated that grades as low as No. 4 wheat might be planted if well cleaned by fanning mill to take out weak seeds , but no sample should be seeded without testing. Records of germinating tests showed that No. 2 northern gave 4% of weak plants and 85% of strong; while No. 6 Special gave 20% of weak plants and only 54 per cent of strong plants.

Treating for Smut

A series of experiment showed that treating for smut increased the yield some 6 or 7 bushels per acre. The grain used for seed was No. 3 Northern smutty. Formaldehyde was recommended for treatment of all grains. With regard to the controversy as to the merits of sprinkling and immersion Prof. Harrison said that immersion had slightly the advantage in yield and percentage of smut, but it was doubtful if the advantage would pay for the extra cost in treating.

Where sprinkling was the method followed best results had been obtained from the use of one pound of formaldehyde to 30 to 35 gallons of water.

Time of Treating

He recommended that so far as possible only 24 hours should elapse between treating seed and planting it. If this was not practicable great care should be used to see that seed was thoroughly dry before stored away for seeding after treatment.

Cultivation

1916 had been an abnormal year when established methods failed as summerfallow had almost invariably yielded less grain and of poorer quality than corn land, which in turn was poorer than fall or spring plowing. Fall plowing gave a higher yield than spring plowing. Early fall plowing yielded better than late fall plowing, showing that in control of rust good cultural methods will give best results provided early maturing can be assured.

Date of Seeding

For last year wheat sown after May 15 did not produce a profitable crop, while wheat sown between April 25 and May 15 not only yielded better, but graded better. The earliest sown graded No. 2 Northern while wheat sown May 25 only graded No. 6 Special with a yield of 10 bushels.

When to Cut

Experiments had shown that rusted wheat yielded best when cut in the early dough stage.

In conclusion Professor Harrison said that their experiments indicated that at present there is no method of treatment to prevent an outbreak or control rust once started. That at present we have no rust resistant wheat of good milling quality; that early maturing varieties are the least affected by rust; that the methods of culture that will produce early maturity should be adopted; that cutting crop when it is slightly on the green side gives better results in a crop that is badly rusted.

Afternoon Session

The first speaker of the afternoon was Professor Jackson. His subject was:

"Wheat Rust Outbreak"

The rust, no doubt, started on July 14, following several rains and much muggy weather, and on the 22nd red rust was observable on the third leaf, giving the crop a reddish tinge; and on Friday, July 28th black rust appeared, only one week after the general appearance of the red pustules, whereas it is usually two or three weeks later than red rust. It was observed in many parts of the Province on this date, reports coming from Brandon Experimental Farm, the Agricultural College, Morris and Killarney that the black or stem rust had appeared. This indicated an almost spontaneous outbreak over the southern part of the Province, south of the Brandon line, and almost in the same stage of development throughout each area; thus making it difficult to trace the origin or spread of the disease. This very early appearance of the black stem rust in the early milk stage of the grain made it obvious that the rust was going to cause considerable damage, and going on the reports from the more advanced stages in the States to the south of us, it became apparent that the great problem was when to cut the grain to make the best out of a bad job. On August 1 a general warning was given throughout the province, through the local press, by district representatives, and otherwise, that this unusually early appearance of the black rust would cut the crop in two and make the grade four or poorer, and that the earlier the grain was cut after the green or late milk stage the better. The harvest reports and experiments conducted by the Botany department on the effect of maturity on rusted grain, shown below, proved that this was correct and that a great part of the possible loss was avoided by early cutting.

Maturity on Rusted Grain

Wheat which was green and in the late milk was cut August 12 and showed that at time of cutting 1,000 grains weighed 19·92 grams, while the same grains on November 8 weighed 17·515 and after oven-drying 16·035, and under germination test gave 88%.

Wheat in early dough stage cut August 16, 1,000 grains weighed 24·86 grams; on November 8, 18·16 grams and after oven-drying, 16·37 grams and the germination was 92%. Wheat of firm dough cut August 19 showed that 1,000 grains weighed 21·22 grams; on November 8 these grains weighed 16·945 and after oven-drying 15·91 and germinated 95%.

Wheat hard and ripe cut August 22, 1,000 grains weighed 22·04; on November 8 the grains weighed 17·95, and after oven-drying, 16·15, while germination was 96%. Unevenly ripened grain cut August 25, weighed 22·64 to the 1,000 grains; on November 8, 17·93 and after oven-drying 16·15 and germinating 95%.

Lodged grain cut August 28, weighed 23·02; on November 8, 17·0; after oven-drying, 15·01, and germinated 96%.

Wheat cut September 1, weighed 22·2 grams to the 1,000 grains; on November 8, 16·64; after oven-drying, 14·94, and germinated 99%.

1,000 kernels Larcombe's prize Marquis wheat weighed 42·4 grams; when oven-dried, 38 grams; 4·4 grams equals 10½% free water.

Average loss of moisture on oven-dried, 10½%, leaving a maximum amount of dry matter in the second cutting, i.e., wheat cut during the early dough stage, corroborating all other results which indicated that grain cut at this stage had not only the best grade and yield but also the maximum amount of dry matter or starch and gluten of the wheat grain actually leaves the kernel and goes back to the stem, as analysis of straw has shown.

Value of Rusted Straw

	Water	Crude Prot.	Crude Fat	Carbo-Hydrates	Fibre	Ash
Straw—						
Rust-free	7·92	2·44	1·65	39·00	40·00	9·00
Rusted	7·92	7·69	1·97	38·44	36·78	7·26
Grain—						
Rust-free	12·26	10·50	2·56	70·55	2·29	1·84
Rusted	10·66	13·69	2·35	68·00	3·03	2·24

As it was, the loss on a conservative estimate was over one hundred million dollars, as the average yield in the southern and main part of the province was 10 and 12 bushels to the acre and graded four, five or feed. The average estimated loss due to rust, computed by an agricultural class of 12 senior students was one hundred and twenty-five million dollars for western Canada. This makes a rust epidemic a very serious matter, but, fortunately, such epidemics are 12 years apart. However, there is no telling when the next epidemic might occur, and the enormous loss warrants every precaution taken that will in any way lessen the rust, and every investigation made which will trace the origin of the rust. And to this end the Botany department is hoping to have a special investigator who will give all his time to the investigation of this problem and other plant diseases which are causing a great annual loss to our crops.

Origin of the Rust

Professor Jackson, after giving a detailed and normal history of wheat rust, showing the three or four different kinds of spores which are produced and how they are spread, laid before the convention the following facts that have developed since the outbreak:

1. That while the outbreak seemed simultaneous throughout the southern part of the Province, and even in isolated areas around Dauphin, quite remote, it was not impossible for the rust spores to have been blown up from the south and thus, perhaps, to have had its origin in Oklahoma or Kansas, advancing like the birds in their north migration, feeding on the same stage of the wheat as it advanced northward. Expert opinion in the northern states seems inclined to accept this view and is desirous of establishing a co-relation in the chain of investigation extending from the southern part of the great wheat field in Oklahoma to its most northern part in Manitoba and Saskatchewan. To this we should, and shall, give every possible assistance in order to locate the origin of wheat rust.
2. It is possible and readily conceivable that the rust spores winter over in Manitoba as they are known to do in Minnesota and Ontario, and thus the rust has a local origin when weather conditions permit. The general, muggy weather throughout the area of the rust this year made it impossible to settle this fact, but, in 1905, Professor Freeman, of Minnesota, said that it had been proven that they will winter over in Minnesota also, so that we are prepared to believe that they will be shown to winter over in Manitoba. This makes a rust epidemic independent of barberry on which it is known to harbor where barberry exists.
3. While it has been clearly demonstrated that wheat rust short circuits and can exist independent of the barberry, it is equally true that it takes to the barberry where such exists and obtains a fresh start from a new kind of spore—the orange spores on the barberry leaf. We should, therefore, prevent the further sale of barberry in the province and encourage the eradication of such few barberry shrubs as we have in the province, so that we shall have a clear conscience in co-operating with our neighboring states to the south.
4. It is more likely that wheat rust harbors over on stubble, straw, in stacks, and more especially on the wild barley or skunk grass, or squirrel grass as it is called, as this grass rusts badly and readily and has been proven to be identical with wheat when its spores are sprayed upon it.

The Facts Many, but Factors Few

While there is a great deal known about the rust and its complex and interesting development, there are only a few of the facts which become factors or controllable features.

1. Rust seems to come with, and be dependent upon certain humid, sultry or muggy conditions over which we have no control. There was a general opinion among the farmers this year that excessive heat was a factor in the damage, and

that the crop would have been materially affected had there been no rust. I believe this is entirely due to an under-estimate of the damage which the rust can do when it comes early enough, as it did this year. It is true that much of the Marquis wheat was white tipped, due of course, to sun scald on breaking from the shot blade, but the discoloration and shrivelling was directly attributable to the red and black rust, these two being the same, and the first stage causing the principal damage inasmuch as it kills the leaves or stomach of the plant; black rust receives the blame because it is present when the damage is observable. The black rust spores usually shove the red rust spores out of their own slits taking possession in the same place even after the stem or the stubble is dead.

2. The difference in the degree of rust and its effect upon the crop in various situations seems more dependent upon the nature of the soil than upon any other factor, thus the report that "summerfallow suffers most" is attributable to the more rapid and, therefore, more tender growth on this more moist soil which, in turn, would produce more dew or humidity in the rust zone beneath the leaves. And the reported lessened effect of the rust on grain grown on newbreak and fresh clearings is likewise attributable to the earlier maturity in such drier situations and the lessened humidity or dew from such dry surfaces.

3. There is not sufficient barberry in the province to cause a rust outbreak. A careful survey of the province last summer led us to believe that there were not over 300 barberry shrubs in the province. The Patmore Nursery of Brandon think there are not over 200, and they have not over 25 shrubs in their nurseries, and very little demand for them. The Mitchell Nursery Company of Coaldale, Alberta, say that there are not over 100 barberry shrubs in that province. The Prairie Nurseries Company, Estevan, think there are not over 1,500 barberry shrubs in the large province of Saskatchewan, as they have not sold 200 plants in four years, and are of the opinion that there is very little barberry in North Dakota and northern Minnesota, there being very little demand for it. They have not observed the yellow spots on the first leaves of barberry as one surely would do had they been present, and our experience has been that it is rather difficult to get the orange cluster cup spots on the barberry as we are continually looking for them for class material. But barberry does harbor wheat rust and is a part of its normal life history where rust is a regular occurrence as it is in Denmark, England, Sweden and other moist climates. And the fact that we have very little barberry is all the greater reason why we should take prompt steps to stop a factor that is within our control, and a resolution will be brought before the first meeting of the Manitoba Horticultural Association on Thursday, to effect the control of barberry.

Plant Improvement

By WM. SOUTHWORTH, M.A.C., WINNIPEG.

Wm. Southworth, M.S., agrostologist of the Manitoba Agricultural College, gave an interesting address on plant improvement in relation to the seed grower.

The address was arranged under three heads, namely:

Crops may be improved by improving the soil fertility, by adopting better methods of cultivating and handling soil and by growing better varieties of crop. For best results all these practices are essential. Before a crop could be considered satisfactory it must be so adapted to its environment as to be capable of yielding good crops throughout a series of years. With this as a standard all farm crops would be found capable of improvement.

Wheat should be developed to be drought and rust resistant. Fodder corns should be developed that would more nearly mature the ears as corn increases in food value as maturity is reached.

Mr. Southworth dwelt longest on the need of developing leguminous plants, such as alfalfa and red clover, stating that one of the greatest drawbacks to the extended use of these plants was that the varieties most easily obtainable killed out readily. The important and difficult task of producing a hardy and free-seeding alfalfa was one of the problems with which they were working at the Agricultural College.

Hardy Alfalfa

The speaker then went on to outline the way in which this work is being conducted and showed that the type of alfalfa required must be hardy, yield good crops, and produce a good return of seed. Plants having hardiness or power to stand climatic conditions are obtained simply by sowing seed of the hardiest strains available and allowing the crop to remain down throughout a series of years until all the tender or weakly plants are killed out, i.e., the crop is subjected to a process of natural selection which results in the survival of the hardiest plants.

Hardy alfalfa, produced in this way, would consist of various types of plants, both erect and spreading, heavy yielders and light yielders would be found; the seeding ability would also be very variable. But in all these varied types it is hardly likely a single plant would be found possessing all the good qualities required. In order to establish a strain superior to the average alfalfa, seeds from the best plants should be gathered which would form the nucleus of an improved strain. This would not be pure, but a mixture of various types which, as a whole, would be superior to the original strain from which it was obtained.

What we are trying to do in our alfalfa breeding, said Mr. Southworth, may briefly be stated as follows: First, obtain hardy plants by natural selection. From these plants select the most desirable types and fertilize the flowers by hand. The seed thus obtained is planted and the best plants again selected and hand-fertilized. This system of selection and hand-fertilization is continued until superior pure-bred types are established. By this means we get rid of the inferior blood present in the natural or mongrel crosses found in our common alfalfa.

Having purified our stock, we then cross-fertilize the superior plants of the pure-bred stock and in this way we hope to get the vigor resulting from obtaining hybrids between pure-bred plants.

What we are aiming at, then, is not to give the farmer a pure-bred alfalfa, but a hybrid strain which is the result of crossing the best pure bred types, we can produce. This system of plant improvement is very slow, but thorough: it requires time, and we cannot do much to hurry up the process; then we must be prepared for all kinds of difficulties and disappointments which arise. With alfalfa we have succeeded in isolating a few promising types, which gives us reason to hope that in the future we may meet with some measure of success.

Resolutions

The last work of the afternoon was the discussion and adoption of resolutions.

The most important one was that dealing with the extermination of the barberry bush on accout of its acting as a host for rust. The resolution asked that the few bushes at present in Manitoba be destroyed and that legislation be enacted prohibiting the future planting of the barberry.

A cordial vote of thanks was passed to the Department of Agriculture for the money grant which had facilitated the inspection of seed plots. The press was also remembered as was also the good work of the district representatives.